

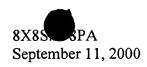
## What is claimed is:

A telephony communications arrangement, comprising:

a unique internet-based private branch exchange including a programmable processor circuit programmed to control a server at the internet-based private branch exchange, the internet-based private branch exchange adapted to communicate to a remote location over a first communications path using packet-based communications; and

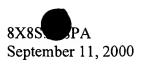
a plurality of packet-communicating endpoint devices, each of which is adapted to communicate with the internet-based private branch exchange over a second communications path which is directly communicatively coupled to the first communications path, wherein the second communications path is also communicatively coupled to a plurality of other packet-based servers, and each packet-communicating endpoint device is configured and arranged to automatically locate (e.g., by broadcasting its identity and waiting for a communication assignment) and establish communication with the unique internet-based private branch exchange from the plurality of other packet-based servers for establishing packet-based communications between the packet-communicating endpoint device and the internet-based private branch exchange.

2. The telephony communications arrangement according to claim 1, wherein each of the packet-communicating endpoint devices is further adapted to store both an IP address and a Media Access Controller address unique to the endpoint device, and to communicate the unique Media Access Controller address with the internet-based private branch exchange.



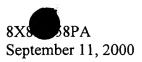
- 3. The telephony communications arrangement according to claim 2, wherein each of the packet-communicating endpoint devices is one of: a telephony device, IP phone, IP appliance such as a PDA (personal data assistance and/or organizer), and a media hub.
- 4. The telephony communications arrangement according to claim 1, wherein each of the packet-communicating endpoint devices is further adapted to store a unique code that identifies the internet-based private branch exchange relative to the plurality of other packet-based servers.
- 5. The telephony communications arrangement according to claim 1, wherein each of the packet-communicating endpoint devices is further adapted to execute a program that causes the packet-communicating endpoint device to search for one of the servers that manifests an acceptable routing path to establish packet-based communication.
- 6. The telephony communications arrangement according to claim 5, wherein the acceptable routing path is defined in terms of an optimally minimum number of routing connections identified over a predetermined period of time.
- 7. The telephony communications arrangement according to claim 6, wherein the acceptable routing path is defined as a function of a capture acknowledgement from one of the servers that has been preassigned to communicate with a code uniquely associated with the endpoint device.

- 8. The telephony communications arrangement according to claim 5, wherein the acceptable routing path is defined in terms of geographic location of one of the servers.
- 9. The telephony communications arrangement according to claim 1, wherein each of the packet-communicating endpoint devices is further adapted to execute a program that causes the packet-communicating endpoint device to search for one of the servers using a selected one of a plurality of search processes.
- 10. The telephony communications arrangement according to claim 9 wherein the plurality of search processes include at least two of the following: see above claims 4-9; and wherein the selection of the one of the search processes is a function one or more of the following: preassigned priority list, cost, time of day, location of target communication destination, a category of service providers, and a type of media (video, audio, etc.).
- 11. An endpoint telephony device for use in an internet-based private branch exchange communications system, the system including a programmable processor circuit programmed to control a server at the internet-based private branch exchange, the internet-based private branch exchange adapted to communicate with a plurality of packet-communicating endpoint devices at a remote location over first and second intercoupled communications paths using packet-based communications, the telephony communications arrangement comprising:



at least one of the plurality of packet-communicating endpoint devices being adapted to directly couple to the second communications path for communicating with the internet-based private branch exchange, the second communications path being communicatively coupled to a plurality of other ones of the plurality of packet-communicating endpoint devices and the first communications path being communicatively coupled to other packet-based servers, said at least one of the plurality of packet-communicating endpoint devices being configured and arranged to automatically locate (e.g., by broadcasting its identity and waiting for a communication assignment) and establish communication with the internet-based private branch exchange from the plurality of other packet-based servers for establishing packet-based communications between the packet-communicating endpoint device and the internet-based private branch exchange.

- 12. The endpoint telephony device according to claim 11, wherein said at least one of the plurality of packet-communicating endpoint devices is further adapted to store a unique Media Access Controller address and to communicate the unique Media Access Controller address with the internet-based private branch exchange.
- 13. The endpoint telephony device according to claim 12, wherein said at least one of the plurality of packet-communicating endpoint devices is further adapted to store a unique code that identifies the internet-based private branch exchange relative to the plurality of other packet-based servers.



- 14. The telephony communications arrangement according to claim 11, wherein each of the packet-communicating endpoint devices is further adapted to execute a program that causes the packet-communicating endpoint device to search for one of the servers that manifests an acceptable routing path to establish packet-based communication.
- 15. The telephony communications arrangement according to claim 14, wherein the acceptable routing path is defined in terms of an optimally minimum number of routing connections identified over a predetermined period of time.
- 16. The telephony communications arrangement according to claim 11, wherein said at least one of the plurality of packet-communicating endpoint devices is further configured and arranged to automatically search for and distinguish the internet-based private branch exchange in response to a set of programmed rules.
- 17. A telephony communications arrangement, comprising:

an internet-based private branch exchange including programmable means for controlling a server at the internet-based private branch exchange, the internet-based private branch exchange adapted to communicate to a remote location over a first communications path using packet-based communications; and

a plurality of packet-communicating endpoint devices, each of which includes means for communicating with the internet-based private branch exchange over a second communications path which is directly communicatively coupled to the first communications path, wherein the second communications path is also communicatively

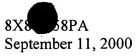
8X8S PA September 11, 2000

coupled to a plurality of other packet-based servers, and each packet-communicating endpoint device further including means for automatically locating (e.g., by broadcasting its identity and waiting for a communication assignment) and establishing communication with the internet-based private branch exchange from the plurality of other packet-based servers for establishing packet-based communications between the packet-communicating endpoint device and the internet-based private branch exchange.

18. A method for telephony communications in an internet-based private branch exchange communications system, the system including a programmable processor circuit programmed to control a server at the internet-based private branch exchange, the internet-based private branch exchange adapted to communicate with a plurality of packet-communicating endpoint devices at a remote location over first and second intercoupled communications paths using packet-based communications, the telephony communications method, comprising:

causing each of the plurality of packet-communicating endpoint devices to communicate with the internet-based private branch exchange over the second communications path and to automatically locate (e.g., by broadcasting its identity and waiting for a communication assignment) and establish communication with the internet-based private branch exchange from the plurality of other packet-based servers; and

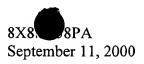
in response to distinguishing the internet-based private branch exchange from the plurality of other packet-based servers, establishing packet-based communications between the packet communicating endpoint device and the internet-based private branch exchange.



- 20. The method according to claim 19, further including causing said at least one of the plurality of packet-communicating endpoint devices to store a unique code that identifies the internet-based private branch exchange relative to the plurality of other packet-based servers.
- 21. The telephony communications arrangement according to claim 19, further including causing said at least one of the plurality of packet-communicating endpoint devices to search for one of the servers that manifests an acceptable routing path to establish packet-based communication.
- 22. The telephony communications arrangement according to claim 21, wherein the acceptable routing path is defined in terms of an optimally minimum number of routing connections identified over a predetermined period of time.
- 23. A telephony communications arrangement, comprising:

a unique internet-based private branch exchange including a programmable processor circuit programmed to control a server at the internet-based private branch exchange, the internet-based private branch exchange adapted to communicate to a remote location; and

a plurality of packet-communicating endpoint devices, each of which is adapted to communicate with the internet-based private branch exchange which is communicatively coupled to the first communications path, wherein the second communications path is



also communicatively coupled to a plurality of other packet-based servers, and each packet-communicating endpoint device is configured and arranged to automatically locate and establish communication with the unique internet-based private branch exchange from the plurality of other packet-based servers for establishing packet-based communications between the packet-communicating endpoint device and the internet-based private branch exchange, wherein the automatic location includes broadcasting its identity and waiting for a communication assignment from at least one of: a DNS and the internet-based.

24. The telephony communications arrangement of claim 23, wherein each packet-communicating endpoint device is configured and arranged to establish the communication with the unique internet-based private branch exchange only after security is validated with the unique internet-based private branch exchange.